Who catches the biotech train? Understanding diverging political responses to GMOs in Southeast Asia

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Abstract

Agricultural biotechnology in general and "genetically modified organisms" in particular present, depending on whom you believe, either great opportunities for – or threats to – the future of farming and of food security in Southeast Asia. As a reflection of this cognitive rift, countries in the region have adopted divergent policies on genetically modified crops. Although both countries strove to become biotech pioneers in the 1990s, today the Philippines has emerged as regional leader in this second Green Revolution whereas Thailand effectively has rejected the new technology. Why have proponents of applied agricultural biotechnology succeeded in making the cultivation of biotech crops politically acceptable in the Philippines but failed in Thailand?

Keywords: biotechnology; genetically modified organisms; agriculture; Asian financial crisis; sufficiency economy

"The government won't let the country miss the biotechnology train."

– Thaksin Shinawatra (2004)

"There is great objection to this [technology] from the civil society. So the Philippines will not be initiating or pushing for this experimentation [on genetically-modified crops]."

– Gloria Macapagal-Arroyo (2001)

In *The windup girl*, an award-winning science fiction novel set in 23rd-century Thailand, multinational corporations control the world's food supply, and superweeds and food-borne diseases plague mankind. Thailand is the sole remaining national bastion of resistance, retaining a modicum of sovereign control over its genetic resources and thus thwarting the monopolistic ambitions of imperialistic "calorie corporations," for which intellectual property rights over genetic resources serve as an instrument of global domination (Bacigalupi 2010).

If there is an element of truth in the conceit of this biopunk science fiction novel, it is that recent Thai governments, contrary to what the quote from Thailand's then-Prime Minister Thaksin Shinawatra above might suggest, in comparison with its regional peers have been exceptionally hesitant when it comes to embracing the biotechnological revolution, partly out of fear of domination by foreign "calorie corporations" (see table 1). The Philippines, similarly contrary to what the quote from then-President Gloria Macapagal-Arroyo above might suggest, is Southeast Asia's undisputed agro-biotech leader, with an estimated 800,000 hectares of genetically modified (GM) maize under commercial cultivation.[1]

[1] It is followed by Burma/Myanmar which is growing an estimated 300,000 hectares of GM cotton (James 2014; Oo 2010). Indonesia and Vietnam have more recently jumped on the biotech bandwagon, with the former country having approved drought-resistant GM sugarcane for commercial cultivation, and the latter giving the green light to cultivation of GM maize (Waltz 2014; Thanh Nien News 2015). While Malaysia has yet to commercialize any GM crop, it approved confined field trials on delayed-ripening GM papaya in 2013 (Wahab

Laboratory & greenhouse	Field trial	Commercialization
Thailand	Malaysia	Philippines
		Burma/Myanmar
		Indonesia
		Vietnam

Table 1. Stage of development of GM crops in major agricultural economies in Southeast Asia, 2015

The objective of this article is to shed light on the politics surrounding the incorporation – or exclusion – of modern agricultural biotechnology in national models of rural development in Southeast Asia.[2] It does so through a comparative study of Thailand and the Philippines, as they effectively represent the extreme ends of the regional spectrum.[3] Their sharply contrasting positions with regards to GM crops also present something of a puzzle, because the two countries were in fact at a similar stage in the development of GM crops as recently as 2001, when both had approved and conducted open field trials. Since then, the Philippine state has taken a step forward, to commercialization, by allowing maize farmers to plant GM seeds sold by Monsanto, Pioneer Hi-Bred, and Syngenta. The Thai state, on the other hand, has taken several steps backwards, by instructing Thai plant scientists working on GM crops

2014). Although unrelated to agriculture, the Malaysian government in 2010 released genetically engineered mosquitos in order to evaluate their potential as a means by which to combat dengue fever.

[2] In this article, modern agricultural biotechnology refers to techniques associated with genetic engineering and thus to crops that are classified as genetically modified organisms (GMOs). It does not include more "traditional" biotechnological applications to plant science, such as tissue culture.

[3] Thailand is of course not alone in Southeast Asia in abstaining from making a serious push into GM farming. One might also point to Brunei, Cambodia, Laos, and Singapore. But Cambodia and Laos largely lack the scientific resources for any serious biotech push, and Brunei and Singapore have miniscule agricultural sectors. Thailand, in contrast, enjoys both the scientific capabilities – not least the human resources – and a sufficiently large and advanced agricultural sector that it could, if it so desired, become a regional and perhaps global leader in the adoption and development of modern agricultural biotechnology.

to return to their greenhouses and laboratories, where they remain confined today. How can we explain these divergent biotechnological trajectories?

Seeking to answer that question is substantively worthwhile, as divergent national policies with regard to GMOs are likely to critically shape the agricultural and economic futures of Southeast Asian nations. While there is no room in this paper to properly assess and quantify such impacts, the Philippine-Thai divergence in maize production since GM seeds were approved for commercial cultivation in the Philippines (in December 2002) is suggestive of the potential economic implications of GMO-related policy choices (see figure 1). The number of Philippine farmers growing GM maize had by 2011 topped 300,000, and farm incomes had been raised, according to one estimate, by a total of US$378.3 million between 2003 and 2012 (Brookes 2014: 11). Furthermore, the fact that the Philippines has emerged as an exporter of maize is a feather in the cap for a state committed to achieving national "sufficiency" (Aguiba 2013). In Thailand, on the other hand, a serious tension between official policy and the "everyday" political economy of at least one GM crop has arisen, as farmers seek prosperity in what Ronald Herring with reference to India and Brazil has described as "an anarchic agrarian capitalism that defies surveillance and control of firms and states" (Herring 2007: 130). Some of the best evidence for significant illicit cultivation of GM crops by Thai farmers comes from Europe. Thailand alone accounts for 25 percent of the notifications of unauthorized GM food or feed in imports into the EU during the three-year period from 1 January 2012 to 1 January 2015, and in all instances GM papaya was the culprit.[4] Thus, Thailand and the Philippines do not just differ in their GMO-related policy choices. As a consequence of those choices, they also differ in the degree to which they have been able to respond to new technological developments in such a way that farmers seeking

[4] Data from RASFF portal (https://webgate.ec.europa.eu/rasff-window/portal/), accessed on 15 April 2015.

to boost the productivity of their farms make crop choices that align with official development ambitions and comply with government regulations.[5]

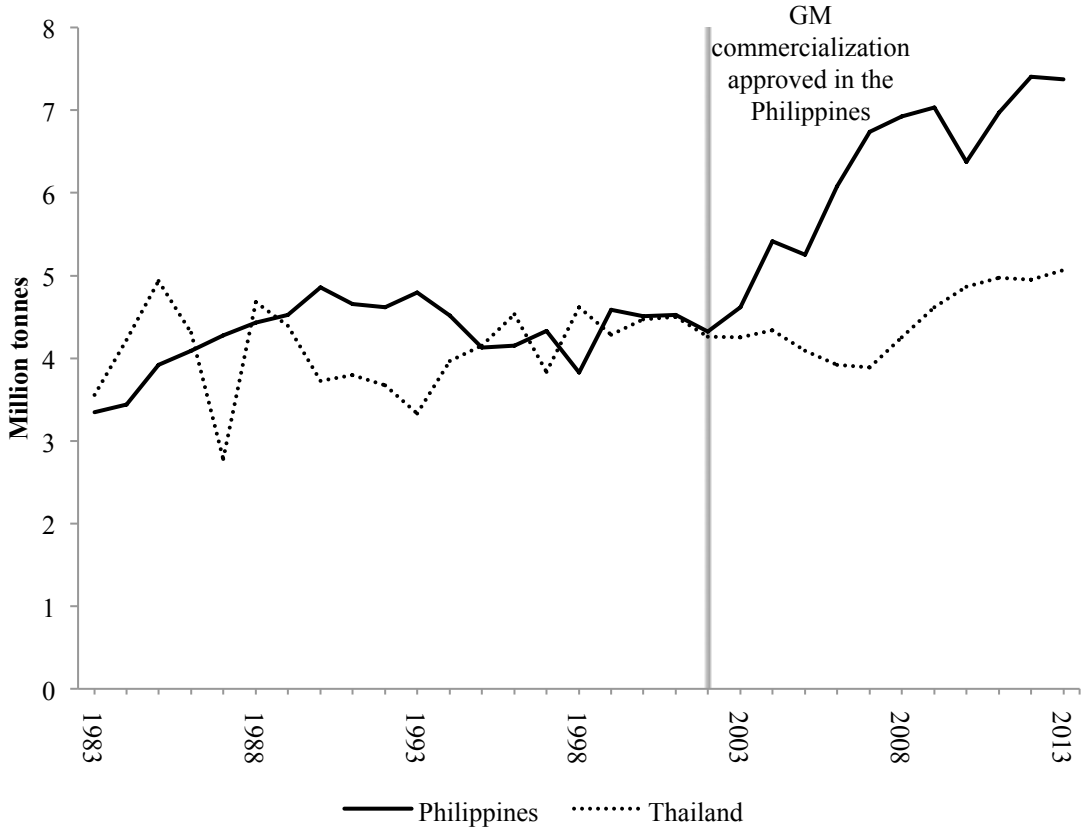

Figure 1. Maize production in the Philippines and Thailand, 1983-2013

Source: FAOSTAT (http://faostat3.fao.org)

In this essay I argue that a number of commonly invoked cultural, economic, and institutional variables fail to properly account for GMO policy divergence in Thailand and the Philippines, and that its historical and political origins are to be found in the different degrees to which the Asian financial crisis of 1997 caused transformations in the political and

[5] The paper is based on the assumption that the application of modern agricultural biotechnology has the potential to increase the productivity of farmers, but recognizes that it will not necessarily do so. Whether it does in any particular instance depends on the specifics of the genetic modification, local agronomic conditions, and other many other factors.

ideological landscapes in the two countries. In short, the Asian financial crisis paved the way for mobilization and empowerment of opponents of agricultural biotechnology in Thailand, but not, or much less so, in the Philippines. In Thailand the crisis produced a gradually increasing level of inconsistency between policies and initiatives promoting the development and adoption of complicated "foreign" technologies such as GM crops and an ascending developmental paradigm – sufficiency economy – which viewed "globalization" as a dangerous thing which the Thai state could not be trusted to manage well. It is therefore little wonder that Prime Minister Thaksin stumbled when he tried to jump on the biotech train. In the Philippines, in contrast, the crisis if anything further strengthened the tight coupling between regnant developmental ideas – a market- and technology-driven model of rural development focused on boosting productivity – and a liberal regulatory framework governing research and development on, and eventually commercialization of, GM crops. This is, ultimately, why President Macapagal-Arroyo failed in her brief attempt to reverse course on GMOs. In analytical terms we may think of the divergent paths of the two countries as critically shaped by variation in the extent of "friction" between ideas and institutions that emerged in the wake of the financial crisis (Lieberman 2002).

The essay is divided into two main sections. I begin by discussing alternative explanations for why some countries adopt GM crops and others do not, and outlining an explanatory framework centered on the impact of the Asian financial crisis and its implications for groups seeking to promote or oppose GM crops. I then present a brief history of political contestation over agri-biotech-relevant policies and initiatives in the two countries. This serves three related analytical purposes. First, to establish that the two countries' biotech trajectories prior to 1998 were, indeed, comparable and that they diverged only after the crisis. Second, to identify the precise moments, in the aftermath of the crisis, when the direction of travel with regards to agricultural biotechnology diverged. Third, to

show how the two countries have become locked into their separate biotech paths in the years since the initial parting, in spite of serious efforts to reverse course (i.e., reviving biotech ambitions in Thailand, halting them in the Philippines). In the latter two sections, particular attention is paid to the political dynamics at work in episodes of political contention over the future of GM crops, with a particular focus on the ideological context. Thus, although the Asian financial crisis had nothing directly to do with agricultural biotechnology, I argue that it has played a surprisingly important role both in shaping the political arena in which struggles over GM crops take place and in determining the outcomes of those struggles.

Explaining the biotech divide

Scholars have identified a number of variables that influence the likelihood that a country will adopt (or reject) GM crops. Cultural differences provide one possible source of policy divergence. Not the least in popular debates, culturally distinct attitudes to foods are frequently invoked in order to explain why some countries (such as the United States) have embraced agricultural biotechnology whereas others (such as the European Union and Japan) have been more wary of this form of agricultural innovation. The problem with an argument centered on differences in deep-seated national values is that these for analytical purposes must be considered constants, whereas GMO policies even in places like Europe and Japan have varied considerably over time (Sato 2015). This is true also for Southeast Asia, and this undermines any argument along the lines that GMOs are more amenable to incorporation into the moral and cultural fabric of the Philippines than that of Thailand. In addition, the dominant cultural and moral tradition in the Philippines – Roman Catholicism – is generally perceived to be rather less hospitable to GM technologies, including but not limited to agricultural applications, than the eclectic Hindu-Buddhist cultural paradigm found in Thailand (Silver 2007; Fox 2007; Brunk and Coward 2009). In the Philippines, the portrayal

of genetic modification as an act of hubris ("playing God") and "unnatural" has significant religious resonance. In Thailand, in contrast, the Theravada Buddhist cultural paradigm provides more limited scope for such religiously inspired stigmatization of biotech science, given the absence in canonical Buddhist texts of a creator god and notions of nature (Harris 1991).[6] It is therefore not entirely surprising that, whereas the Catholic Church in the Philippines has "largely expressed apprehension about genetic modification" because of its "potentially deleterious impact on the environment, farmers' socio-economic well-being, and moral and ethical issues" (Cabanilla 2007), the Thai equivalent of the church, the Buddhist *sangha* (monastic order), has not, as far as is known, put its opinion on GMOs on the record. A culturally essentialist explanation for biotech divergence (which regards culture as static), cannot easily explain the observed biotech divergence given that (1) Thai policy has changed over time and (2) the positions of religious authorities in both countries push in the "wrong" direction.

This does not mean that culture does not matter. But to the extent that it does, it is not because culture is "a unified system that pushes action in a consistent direction" – for or against GMOs, for example – but rather because it provides a "'toolkit' for constructing 'strategies of action'" (Swidler 1986, 277). Thus, the role of cultural factors in contestation over GM crops should not be dismissed. As will become clear, the GMO wars in Southeast Asia as elsewhere have been fought, in very large part, on shifting and conflicting ideological and discursive battlegrounds (Andrée 2007; Sato 2013), by a wide range of political and social actors, including religious ones.

Material interests provide another possible source of policy divergence. It has, for example, been highlighted that close trade relations with the European Union appear to affect the acceptance of GM crops negatively in developing countries, while close trade ties with

[6] Biotechnological innovation and adoption might, however, be blamed for being driven by "greed." But the Buddhist emphasis on intentionality does not single out GMOs as morally more problematic than any other technological innovations..

the United States have been associated with the opposite effect (Paarlberg 2001; Clapp 2006). The degree to which the Philippines and Thailand are dependent on exports to the United States and the European Union are therefore salient factors, and a significant share of both countries' exports are indeed destined to these markets. The patterns of trade do not, however, provide any clear incentives for these countries to tack towards either an American or a European approach to biotechnology policy. While both countries were more dependent on exports to the United States than to the European Union in 2001, the US lead was relatively small, although less so in the Philippines than in Thailand. It is also noteworthy that the Philippines was more dependent on exports to both the United States and the European Union than was the case for Thailand (see table 2). Thus, in the early years of this century, it was by no means self-evident that strategic trade interests would be best served by Thailand choosing (as it did) to reverse course, and the Philippines choosing (as it did) to push ahead with cultivation of GM crops.

Neither can geopolitical positioning easily account for the biotech divergence. As the United States is a major supporter of agricultural biotechnology, it is possible that countries whose strategic and security interests are more closely intertwined with those of the United States may also be more inclined to adopt a US-style position on GMOs. While there are important differences in the US relationships with the Philippines (a former US colony) and Thailand, the fundamental similarities in terms of strategic positioning in recent decades are striking. During the Cold War, the Philippines and Thailand chose to align themselves tightly with the United States, and both countries hosted US military bases. It is also noteworthy that US President George W Bush designated both countries as major non-NATO allies in 2003, and that both the Philippines and Thailand joined the multi-national force in Iraq (Ciorciari 2010: 117-120). The United States has also given support to the governments of both countries in their respective conflicts with Islamic separatist movements. Here one may also

note that although the US government has, indeed, made a concerted effort to push for agricultural biotechnology in both Thailand and the Philippines, its main priority has been to gain market access for US-based producers of GM crops. That has been secured in both Thailand and the Philippines.[7]

It is also possible that domestic interest groups may shape the policy choices made by politicians. Undoubtedly, there are some interest groups that benefit from the adoption of GM crops, and others that regard it as a threat. For both the Philippines and Thailand, significant economic interests are most likely to have been at stake with regards to the three main GM crops that have been commercialized globally, namely maize, soybeans, and cotton. In 2000, both countries were producing maize in meaningful quantities. The Philippines was an insignificant producer of cotton and soybeans, whereas these crops played a greater but still marginal role in Thai agriculture (see table 2).

	Exports (% share)[a]		**Crop production (tonnes)[b]**			**Organic agriculture[c]**	
	USA	EU15	Maize	Cotton	Soybean	Hectares	Share of total agri. area (%)
Philippines	28.0	19.3	4,511,104	1,114	953	14,134	0.12
Thailand	20.3	16.2	4,472,903	34,275	312,432	21,701	0.11

Table 2. Economic factors relevant to the politics of agricultural biotechnology

Sources: a) Export figures are for 2001 and from the International Trade Centre, http://www.trademap.org/tradestat/Bilateral_TS.aspx. b) Crop production figures are for 2001 and from FAOSTAT (http://faostat3.fao.org). c) Data refers to 2005 and from FiBL & IFOAM (2014), Data on organic agriculture 2005-2012. The Organic-World.net website maintained by the Research Institute of Organic Agriculture (FiBL), Frick, Switzerland. Available at http://www.organic-world.net/statistics-data-tables-dynamic.html.

[7] GM crops are thus *consumed* in both Thailand and the Philippines, but approved for production only in the Philippines.

In light of this it seems reasonable to assume that Thai farmers would have been more exposed to the challenges posed by global competition than their Philippine counterparts – and as such they would have had a greater incentive to adopt productivity-enhancing technologies. This difference in material interests and incentives are further reinforced by the fact that the governments of the two countries have adopted very different policy postures towards maize producers in one critical respect. Whereas governments in Manila have protected them from international competition, governments in Bangkok have generally not. The nominal rate of protection for maize in the Philippines has risen steadily since the 1970s and reached "nearly 80 percent in the late 1990s" (David, Intal, and Balisacan 2009: 245). In contrast, the nominal rate of protection for maize in Thailand has hovered around zero in the period from 1968 to 2005 (Warr and Kohpaiboon 2009: 263). Arguably, Thai maize farmers would therefore have faced greater pressures than their more sheltered Philippine counterparts to adopt GM crops.[8]

Some producer groups may also have an interest in opposing GM crops, and it has been shown that European countries with a significant organic-farming sector have tended to adopt more hostile policies towards GM crops than countries where organic farming plays a more marginal role (Kurzer and Cooper 2007). In both the Philippines and Thailand, however, the raw economic power of the organic-farming sector is minimal indeed, with organic farming covering just a little more than one tenth of one percent of the total agricultural area of these countries in 2005 (see table 2). Thus, differences in the strength of organic farming in the Philippines and Thailand are unlikely to explain divergent policy outcomes with respect to GM crops.

[8] Papaya, GM varieties of which as mentioned earlier are grown surreptitiously in Thailand, is not a major commercial crop.

Apart from material interests, institutional factors – such as the nature of the state, regime type, and political parties – may play an important role in shaping outcomes. With this in mind it is worth noting that scholars of state-led economic development regard neither the Philippine nor the Thai state as "developmental" in the East Asian sense (Booth 1999; Doner, Ritchie, and Slater 2005). However, the Thai state is generally regarded as stronger and more coherent than the Philippine state (Larsson 2013; Raquiza 2013), and it has often been regarded as more capable of promoting agricultural growth and expansion (Akiyama and Larson 2004; Doner 2009: chapter 5). Indeed, the Philippine state has even been labeled "anti-development" (Bello et al. 2005). As far as state capacity is concerned, one would therefore expect Thailand to be somewhat better positioned than the Philippines to promote modern agricultural biotechnology.

In the period under scrutiny here, the Philippines and Thailand would, for the most part, be considered among the region's more open and democratic regimes (Bertrand 2013). In both countries the political systems have provided extensive opportunities for advocates and opponents of agricultural biotechnology in civil society and business to influence public debate and the political agenda. This is in contrast with the more authoritarian states in Southeast Asia, such as Burma/Myanmar and Vietnam, where opportunities for civil society to mobilize against GM policy have been minimal. For the Thai case, however, we have some significant variation in political institutions, not least thanks to military coups in September 2006 and May 2014. However, as we shall see, these take place after the two countries have already diverged with regards to GM policy, and thus cannot explain the divergence.

Political parties are another potentially salient institutional factor. In studies of GM politics in Central and Eastern Europe, for instance, it has been observed that "the ideological composition of governments matters in explaining the regulation of agricultural

biotechnology" (Tosun 2014: 362). More precisely, coalition governments in which a Christian Democratic party or an Agrarian party participated in government were more likely to ban the cultivation of GM crops. Here we may therefore note that the party systems of the Philippines and Thailand do not reflect such fundamental ideological or socio-economic cleavages. Political parties in these two countries tend to be clientelist and populist rather than programmatic (Ufen 2012; Hicken 2009; Hutchcroft and Rocamora 2011). There are no major political parties in either country that could be considered Agrarian (or, indeed, Green); however, some leading political parties in the Philippines may be described as Christian Democratic. In addition, following the passing of the 1995 Party-List Act, some *minor* political parties that may be regarded as Agrarian have successfully stood for election to the House of Representatives of the Philippines. Examples include Butil Farmers Party, Anakpawis, and ABA (*Alyansang Bayanihan Ng Magsasaka, Manggagawang Bukid at Mangingisda*, Cooperative Alliance of Farmers, Agricultural Workers and Fishermen). Anakpawis respresents the Peasant Movement of the Philippines (KMP, *Kilusang Magbubukid ng Pilipinas*), which is a leading anti-GMO group. Through the party-list system, an assortment of NGOs and social movements has thus found representation in the legislature, where they on occasion have been able to build coalitions broad enough to succeed in enacting "socially progressive" laws (Abinales and Amoroso 2005: 267), among which some might count the Organic Agriculture Act of 2010. Thus, while differences in the shape of party systems and coalition governments are unlikely to play a critical role, taking this factor into account would lead to the expectation that the Philippines would be somewhat less likely than Thailand to adopt GM crops (which is contrary to the observed outcome).

All in all, a consideration of these cultural, material, and institutional variables does not seem to offer any immediately compelling explanation for Philippine-Thai divergence. This should not come as a complete surprise: "There is no robust or parsimonious

explanation for why some countries accept agricultural biotechnology with little contention, whereas others change positions over time or reject the technology altogether" (Herring 2014: 2). As a consequence, a less parsimonious approach that is sensitive to the historical and political context is called for.

Historic blocks, crises, and ideas

The approach taken in the remained of the paper is centered on two main ideas. The first is that policy outcomes with regards to GM crops can be viewed as the products of wars of position between rival social forces, reflecting in particular the triumphs and tribulations of the "biotech block" (Andrée 2007), which here refers to the alliances of social groups that seek to promote research, development, and commercial adoption of agricultural biotechnology, and especially GM crops, in Southeast Asia. These groups generally justify their commitment in this regard with reference to the technology's potential to alleviate poverty, ensure food security, and improve public health. These are, of course, serious challenges in a region experiencing population growth and the effects of climate change. As with Gramsci's notion of a "historic block," the biotech block in Southeast Asia brings together elements of civil society, commercial interests, and (parts of) the state; and it does so at both national and international levels (Cox 1983). Amongst the leading members of the biotech block in the Philippines and Thailand we find multinational seed corporations, Philippine and Thai plant scientists in public universities and research institutes, state agencies promoting technological advancement and agricultural productivity, and farmers and agro-industrial businesses attracted by the promise of the new technology.[9] A further

[9] It may be noted that members of the biotech block do not promote modern agricultural biotechnology to the exclusion of other, more traditional, approaches to plant breeding. In fact, most of their work is often concentrated on non-GM crops. Furthermore, it should be noted that while I describe the biotech block as "pro-GMO" I do not wish to imply that this is position taken without reservations. Members of the biotech block tend to support the adoption of GM crops that have been carefully tested and evaluated and found to provide significant benefits while posing minimal risks.

international dimension is added to the biotech block thanks to the efforts to promote agricultural biotechnology in the region that have been undertaken by, most prominently, the US government, the Rockefeller Foundation, the Bill and Melinda Gates Foundation, the International Rice Research Institute (IRRI, which is based in the Philippines), and the International Service for the Acquisition of Agri-biotech Applications (ISAAA).[10]

In this war of position, the biotech block faces a rival historic block that likewise has sought to capture the commanding heights of Southeast Asian's rural political economy. In the core of the "alternative agriculture" block we find environmental and farmers' movements and non-governmental organizations (NGOs), local and international corporate actors (such as producers and buyers of "organic" foods), and arms of the state responsible for public health and environmental protection (Larsson 2015a; Vandergeest 2009). In a pattern not dissimilar from that of the US on the biotech side, the European Union, European governments, and prominent Europe-based NGOs such as Greenpeace have taken a number of initiatives aimed at promoting various kinds of alternative agriculture in Southeast Asia (including organic farming and the System of Rice Intensification).

In Southeast Asia as elsewhere in the world, anti-GMO activism is transnational in form and it is frequently inspired by romantic visions of imagined harmonious rural communities that are threatened by, and therefore in need of protection from, modern markets and technologies (Bownas 2012; Brass 2000; Dayley 2014; Ewing 2013). In contrast, the policies supported by the biotech block are based on the belief that small-scale, resource-poor farmers have much to gain by accessing advanced crop technologies and by integrating into global markets.

While farmers' movements and NGOs are well represented within the alternative agriculture block, the same cannot be said for the biotech block. There have, however, been

[10] ISAAA is a not-for-profit international organization headquartered at Cornell University in Ithaca, New York. It is dedicated to providing small-scale, resource-poor farmers in developing countries access to crop biotechnology. It has been intimately involved in GM projects in both the Philippines and Thailand.

some efforts made at broadening the biotech alliance to incorporate representatives also of small-scale farmers. As part of this strategy, Philippine and Thai farmers have been invited on study tours abroad, to allow them to witness GM farming in person. While these efforts as yet fall rather short of any more serious pro-GM farmer mobilization, a few interesting initiatives have resulted. For example, in an appeal to Thailand's National Human Rights Commission (NHRC), a papaya farmer who has been active in the pro-GMO cause argued that the government by denying him access to GM seeds was violating his human rights and his freedom. In response, NHRC ruled that the ban on GM crops did not breach his human rights (Larsson 2015b: 8).[11] This appeal to a national human rights body is noteworthy because it reflects an important dimension of the struggle for hegemony. Namely, that the two rival blocks have sought to "recruit" representatives of state agencies otherwise not primarily concerned with agricultural biotechnology and closely related issues, such as human rights commissioners and judges, who may be in a position to decisively tip the balance for or against GM crops.

The second main idea is that the constitution as well as the power and influence of these rival blocks can be shaped by historical events – crises, scandals, etc. – that have little or nothing directly to do with GMOs. The European Union's shift towards a precautionary approach to GM crops in the wake of the scandal surrounding "mad cow disease" in the 1990s is a prominent example of this. This article posits the Asian financial crisis as a functional equivalent of mad cow disease – as an exogenous shock with varying degrees of impact in different contexts. What is new with this argument is, of course, not that the Asian financial crisis had important political and economic consequences, or that the crisis affected Southeast Asian countries differently. It is well known that because Thailand was more

[11] Lobbying by pro-GMO farmers also helped remove the cultivation of GM crops from a draft regulation identifying the types of projects or activities subjected to extra stringent regulatory requirements (Environmental Impact Assessment, Health Impact Assessment, Public Hearing, Independent Assessment). Author's interview with Nipon Iamsupasit, Biotechnology Alliance Association, Bangkok, 3 September 2013.

severely affected by the crisis than the Philippines, it had a correspondingly greater impact on political and economic life (Hicken 2008; MacIntyre 2001; Hutchcroft 1999). In Thailand, the crisis led to the enactment of constitutional reforms, which in turn enabled the rise of Thaksin Shinawatra's Thai Rak Thai Party (Hicken 2006), and the fashioning of a new "developmental social contract" (Hewison 2005). Novelty lies in the link between the financial crisis and the divergent fates of agricultural biotechnology in the two countries. This analysis resonates with that of Tiberghien, who has argued that the "the GMO issue" in the European Union and Japan may be regarded as "a proxy" for a "larger malaise about globalization" (Tiberghien 2006: 15-16). In Thailand, similarly, GMOs came to be associated with "cleavage-ridden issues with redistributive implications like globalization, discomfort with Western technoscientific models, and cultural imperialism" (Durant 2007: 433).

While the Asian financial crisis led to a wide-ranging reshaping of the political landscape in Thailand, but not in the Philippines, ideational changes were particularly important. This is because many of the political institutions that were created in Thailand in the wake of the financial crisis (such as the 1997 constitution) or the new political actors that rose to power and influence (such as Thaksin and the Thai Rak Thai Party) have not endured. In contrast with institutional fluidity and a rotating cast of characters, ideational changes that can be traced back to the Asian financial crisis have proven remarkably durable in the years since. Thus, while the shorter-term political consequences of the Asian financial crisis play an important role in the making and unmaking of GMO-related policies, it is ideational change (Thailand) and continuity (the Philippines) that have locked the two countries into their divergent trajectories for the longer term.

A brief history of policies and initiatives relevant to GM crops

In order to demonstrate the effect of the Asian financial crisis on the politics of GM crops it is necessary to describe the sequence of events that led to divergent biotech outcomes in Thailand and the Philippines. For analytical purposes, I will divide the presentation of the history of relevant biotech policies and initiatives into three periods. The first, during which the two countries become pioneering supporters of GM crops, begins in the early 1980s and ends in 1997, after the onset of the Asian financial crisis. The second period, from 1998 to 2002, is characterized by rising opposition to GM crops that eventually causes the two countries to adopt contrasting approaches. During the final period, from 2003 until 2015, contestation over GM crops continues, but efforts to reverse policy fail – demonstrating how the two countries have become locked into their divergent trajectories. The section concludes with a comparative discussion.

Biotech pioneers, 1980-1997

Thailand

In Thailand, a National Center for Genetic Engineering and Biotechnology (BIOTEC) was established in 1983, falling under the Ministry of Science and Technology. BIOTEC in turn funded the establishment, in 1985, of the Plant Genetic and Engineering Unit of Kasetsart University. This followed Thailand's failed bid to be selected as host of the International Centre for Genetic Engineering and Biotechnology (ICGEB), a UN institution now headquartered in Trieste, Italy. In addition to BIOTEC, a number of R&D-focused units were established within the Department of Agriculture (Ministry of Agriculture and Cooperatives), most notably the Biotechnology Research and Development Office.

A relatively comprehensive regulatory framework was also quickly put into place. National biosafety guidelines were issued in 1992; a National Biosafety Committee was formed in 1993; the first field trials involving GM crops (Flavr Savr tomato) were given the

green light as early as 1994, making Thailand the first country in ASEAN to field-test a GM crop. Monsanto initiated GM cotton field trials in northern Thailand in 1997, while the country was struggling through the deepest depths of the Asian financial crisis. The economic hardship actually provided an immediate impetus for the promotion of GM cotton. As the country's textile industry was heavily dependent on imports of GM cotton from the United States and Australia, boosting domestic cotton production would reduce the need to use scarce foreign currency to secure adequate supplies. But that would require new and improved seeds, as farmers were turning away from cotton, a crop that was being devastated by pests (Koetsawang 1998). Thai research and development was also initiated on a number of other locally important crops, such as beans, chili pepper, cotton, papaya, pineapple, and tomatoes.

During much of this period, this official enthusiasm for biotech crops reflected a broader developmental approach that emphasized "openness," and was centered on promoting exports, attracting foreign direct investment, liberalizing financial markets, and improving farmers' access to finance, inputs, and markets (Bowie and Unger 1997; Phongpaichit and Baker 1998; Larsson 2012). The severe financial crisis that hit Thailand in 1997, forcing the country to devalue the bah and seek a bailout from the International Monetary Fund, shook faith in this "globalist" developmental model, not least at the very highest levels of the polity. In Bangkok on 4 December 1997, the Thai monarch held his annual speech to the nation, where he extolled the virtues of self-sufficiency in these terms: "We have to live carefully and we have to go back to do things which are not complicated and which do not use elaborate, expensive equipment. We need to move backward in order to move forward" (Phongpaichit 2004: 161).

With this royal pronouncement, the ideational context in which the biotech block – arguably advocates of exceedingly complicated, elaborate, expensive, and "foreign" technologies – operated began to shift in an unfavorably "localist" direction (Hewison 2000).

The Philippines

The Philippines' claim to pioneer status when it comes to modern agricultural biotechnology is justified in so far as the Philippines was the first Southeast Asian nation to create a regulatory framework for research and development on GMOs. Its trailblazing efforts can be traced back to the late 1970s and early 1980s, when a biotechnology research institute was first established at the University of the Philippines–Los Baños. A National Biosafety Committee was established by presidential decree in 1990, and it issued its first biosafety guidelines for GMOs in 1991. However, prior to 1996 there was "virtually no genetic engineering work in the country" (Halos 2000). In December 1997 the government of President Fidel Ramos signed the Agriculture and Fisheries Modernization Act (AFMA) into law. The formally stated objective of this act was to "modernize" the agriculture and fisheries sectors "in order to enhance their profitability" and "prepare [them] for the challenges of globalization." The act recognized agricultural biotechnology as one important means, alongside a "market-driven approach," by which to promote food security (including "sufficiency" in the staple foods rice and white corn), alleviate rural poverty, and make the agricultural sector globally competitive.[15] President Fidel Ramos described the bill as one of "his administration's Christmas gifts to Filipinos" (Lugo 1997). Like the Thai monarch, Ramos posited self-sufficiency as a central development goal. But sufficiency was conceived in radically different terms, namely import substitution, and integration into global markets and the development and adoption of cutting-edge technologies for the production of cash

[15] http://nafc.da.gov.ph/afma/ra8435-1.php

crops were identified as solutions to the problem of low productivity in the agricultural sector. The Philippines would have to move forward in order to move forward.

The comparatively mild impact of the Asian financial crisis in the Philippines meant that pressures for reform were weak and the backlash against globalization muted (MacIntyre 2001; Hicken 2008), to the continued advantage of the biotech block.

Biotech wobbles, 1998–2002

Thailand

Following the Asian financial crisis, and as a consequence of that crisis, sufficiency economy became a keystone of official Thai nationalism. The ideological shift in favor of "localism" as opposed to globalized capitalism, was manifested in the rhetorical embrace by Thai political elites of the economic philosophy that the Thai monarch, in the midst of the financial crisis, had offered as an antidote to the negative consequences of global capitalism: *setthakit phophiang* (เศรษฐกิจพอเพียง, sufficiency economy) (Hewison 2000; Tejapira 2002; Unger 2009; Walker 2010). Sufficiency economy's applied agricultural component, referred to as *thritsadi mai* (ทฤษฎีใหม่, literally "new theory" but often translated as "new agricultural theory"), was imagined as providing the agrarian basis for self-sufficiency at the level of rural households, farming communities, and, ultimately, the Thai nation. This royal message resonated strongly with the discourse developed by the alternative agriculture movement that had emerged in Thailand in the years before the financial crisis struck (Vandergeest 2009). However, it was clearly discordant with the biotech block's globalist high-tech approach to development. Indeed, GMOs were frequently depicted as the very antithesis of the sufficiency economy philosophy and new agricultural theory. As one leading Thai anti-GMO

campaigner and "sustainable" agriculture champion put it: "GMOs are incompatible with the sufficiency economy. We are trying to promote the king's practice."[16]

This royally inspired anti-GMO rhetoric resonated powerfully with a more general anti-globalization discourse that won popular currency in the wake of the crisis, and which depicted foreign "others" as significant threats to Thai national wellbeing. In the more distant past, these "others" had primarily been identified with Western (French, British) imperialists and Asian (Chinese, Vietnamese) communists and their Thai collaborators (Larsson 2012). Now it was the representatives of global capitalism (and their domestic collaborators) who were identified as threats to national wellbeing. In the wake of the crisis, neo-nationalist rhetoric articulated images of "Thais as slaves to foreigners, the semi-colonialism of economic imperialism, and immoral foreign robber-barons" (Callahan 2003: 496). In this ideological environment, it was a relatively simple task for opponents of modern agricultural biotechnology to fit GMOs into these powerfully emotive images, with farmers cast as "slaves" of foreign MNCs, Monsanto in the role of the powerful foreign villain, and the semi-colonialism of the international IPR regime as dark backdrop.

It was in this new ideological context that the biotech cause suffered its first significant setback. In 1999, controversy erupted following the apparent escape of GM cotton plants from Monsanto's research fields into the hands of Thai farmers (GRAIN 2001). This "leak" of GM cotton was discovered by *Munithi chiwawithi* (มูลนิธิชีววิถี, Biodiversity and Community Rights Action Thailand [Biothai]), a local NGO that had been campaigning to halt the adoption of GM crops. It is unclear what exactly happened, but it is possible that small-scale rural "seed pirates" were providing farmers facing a debilitating pest problem with "bootlegged" GM seeds,[17] well before the slow-moving regulatory apparatus had had a

[16] Author's interview with Natwipha Ewasakul, Greenpeace, Bangkok, 11 September 2013.
[17] http://wikileaks.org/cable/2006/05/06BANGKOK3237.html

chance to catch up. The seeds, which reduced the need to use pesticides, were proving extremely popular among long-suffering cotton farmers.[18]

In light of the ideological context of the post-crisis environment, the potency of this incident was significant. In the wake of the scandal, the Thai government hesitated to give the green light for commercialization of GM cotton, but research and development continued.

A second major setback followed in 2001, in the wake of the landslide election victory of Thaksin Shinawatra and his Thai Rak Thai Party, who had emerged as an unlikely champion of localism and sufficiency economy. Indeed, Thaksin's words and deeds played a key role in ensuring that one of the main legacies "of the economic crisis in Thailand may have been to mainstream localism, not merely as an ideological cover for ultra-nationalist reaction, but as an integral component of a new economic compact" (Connors 2005, 280). A key component of Thaksin's electoral strategy had been to not only pay lip-service to royal economic discourse but also to develop links with NGO leaders, including those championing a localist agenda. Before taking power and also after doing so, Thaksin was highly responsive to the issues raised by "localists" (Connors 2005, 279). While this may have reflected pure political opportunism on Thaksin's part, his political strategy was to have deleterious consequences for the biotech block.

On his first day in office, on 10 January 2001, Thaksin had lunch with representatives of the Assembly of the Poor (AOP), a social-justice movement with roots in the country's rural areas, whose dramatic rise in the late 1990s had challenged the top-down and globalization-centered development model adopted by successive Thai governments. While the AOP had initially been quite alone in their focus on redressing rural grievances relating to the development policies and projects of Thai governments, in the wake of the Asian

[18] The Thai cotton sector which had been devastated by pests suddenly bounced back as farmers gained access to seeds referred to as *fay thewada* (ฝ้ายเทวดา, cotton of angels). See Tantiwithayaphithak (2001). Today, however, almost nothing remains of Thai cotton cultivation. Thailand's production of cotton lint in 2012 was equal to 6.1 percent of production in 1982.

financial crisis it became part of a wider national (and indeed international) anti-globalization network that in particular targeted international development institutions such as the International Monetary Fund and the Asian Development Bank. AOP presented Thaksin with a long list of demands, mainly concerning dam projects and access to land and forests. But on the list was also a demand for the "suspension of field trials of GM crops," an issue that had been championed by one of the AOP's component groups, the Alternative Agriculture Network (Missingham 2003: 210).[19] The Thaksin government moved quickly to address all of these grievances in order to put an end to AOP's protest encampment, which under previous governments had become an almost permanent fixture – and a political embarrassment – in front of Government House. A cabinet resolution on 3 April 2001 addressed the vast majority of AOP's demands. The resolution also included a declaration that GM field trials would be suspended, and a promise that a biosafety law would be drafted by a panel comprised of representatives of AOP, consumer organizations, state agencies, and environmental and public health experts (Secretariat of the Cabinet 2001). It was expected that the draft would be ready before the end of the year, and that field trials would then resume under the new law (Bangkok Post 2001a). The part of the cabinet resolution relating to field trials was brief – one sentence – and somewhat ambiguous, but it subsequently emerged that the DOA halted open field trials of GM crops but not closed field trials.

Thus, the suspension of open field trials in 2001 was one very minor component of a larger "package deal" struck between the Thaksin government and AOP. The government's concessions to these demands must be understood in light of the political situation in which Thaksin found himself at the time. Although his party had won a decisive electoral victory, Thaksin personally was in a legally precarious position as he had been charged with concealing assets earlier in his political career. Yielding to the AOP's demands was one way

[19] The Alternative Agriculture Network represented about 2,000 "farming families nationwide" (Missingham 2003: 48).

to further bolster his political support base (Bangkok Post 2001b). It also strengthened the Thaksin government's credentials as a champion of the king's sufficiency economy – the economic philosophy which Thaksin in October 2001 made the guiding principle of development in the 9th National and Economic Social Development Plan (2002-06).

The Philippines

Following the enactment of the agricultural modernization bill, the Philippine government launched GM research projects on banana, coconut, maize, mango, and papaya (la Cruz 2002: 107-8), and leading US agro-industrial corporations completed field trials on a type of GM maize that contain a gene from the soil bacterium Bacillus thuringiensis (and hence often referred to as Bt corn), which makes the plant resistant to lepidopteran insects.

Not everyone in Philippine society was equally sanguine about the government's pro-GMO approach to agricultural modernization, however. In 1999, a senator put forth a bill that would ban the release of GMOs, but which failed to get out of committee, and anti-GMO NGOs such as the alternative-agriculture network MASIPAG (a seed-exchange group) successfully lobbied a few local governments to pass resolutions against field testing of GMOs in their area (de Lange and Castillo 1999).

In early 2001, it looked as if the anti-GMO movement might have succeeded in capturing one of the Philippine political system's commanding heights: the presidency. Only weeks after her inauguration in January 2001 – following the toppling of President Joseph Estrada by a second "people power" movement (Landé 2001) – President Macapagal-Arroyo to the great satisfaction of anti-GMO activists declared that the Philippines would now abandon the biotech push that had been pursued by her recent predecessors: "There is great objection to this from the civil society. So the Philippines will not be initiating or pushing for this experimentation" (Agence France-Presse 2001; Baconguis 2001). By jumping off the

GMO juggernaut, Macapagal-Arroyo was clearly seeking to please some of the more stridently anti-GMO groups that had helped her topple Estrada and paved the way for her constitutionally dubious elevation, by the Supreme Court, from the vice-presidency to the presidency (Franco 2004).

Her stand against GMOs would not endure. With agribusiness interests on Mindanao as some of the most vocal, pro-GMO advocates responded quickly and urged the president to reconsider the indicated policy U-turn on agricultural biotechnology (Castillo and Fiel 2001; BusinessWorld 2001). Similar views were soon put forward by a number of august institutions and personalities, notably the National Academy of Science and Technology and the former chairman of the Catholic Bishops' Conference of the Philippines (CBCP), Bishop Jesus Varela (Castillo 2001; Moises 2001). With the backlash growing in business and science circles, combined with a strong pushback from within her own cabinet, the president found it wise to reverse her GMO rethink. On 16 July 2001, President Macapagal-Arroyo issued the Philippine National Policy Statement on Modern Biotechnology, which committed her government to the promotion of "the safe and responsible use of modern biotechnology and its products" in order to, among other things, "achieve and maintain food security" and "provide farmers and fisherfolks the opportunity to increase their over-all productivity and income."[20] The *status quo ante* had been restored.

More radical anti-GMO manifestations would ensue, but did not seriously threaten the government's commitment to biotechnology. In late August 2001, for example, several hundred protesters led by KMP attacked one of Monsanto's sites for field testing and uprooted the vilified GM plants (Oliver 2001). In 2002, however, the Department of Agriculture issued an administrative order "which provided the basis for commercial release

[20] http://www.ncbp.dost.gov.ph/19-guidelines/28-philippine-national-policy-statement-on-modern-biotechnology

of biotech crops" (Torres et al. 2012: 4), and in December of that year commercial cultivation of GM maize – in the form of Monsanto's MON810 variety – was approved.[21]

Off/on the biotech train, 2003-15

Thailand

While the Thai economy had recovered from the depths of the financial crisis under Thaksin, and the debts to the IMF paid back in full ahead of schedule in 2003, the ideological counter-reaction to globalization continued. And while the origins of Thai anti-GMO activism may be found in civil society, it was increasingly becoming a state-backed project.

One of the manifestations of this was that opponents of agricultural biotechnology were increasingly able to draw on material support for their anti-GMO cause from a number of more independent and politically autonomous Thai state agencies, many of which were established following the enactment of the 1997 constitution. Biothai, the country's leading anti-GMO campaigner, has since 2002 received the majority of its funding from such agencies, most notably the Thai Health Promotion Fund, the Thai Research Fund, and the National Human Rights Commission. In contrast, the members of Thailand's biotech block, in the wake of the crisis, found it difficult to adapt to the shifting discursive sands. Proponents of GM crops largely refrained from even attempting to link modern agricultural technology to sufficiency economy and its promise of national salvation.

Thailand's stalled biotech push nevertheless gained renewed momentum in 2003, with the cabinet approving a five-year biotech master plan. The plan included a government commitment to "set forth clear policy or management to settle some highly controversial issues" such as "policy on the development of safe GMO products" (National Science and Technology Development Agency 2005: 4). The plan included on its "immediate" to-do list

[21] Just to be clear: this type of GM maize is for feed and not for food; it is different from the white corn mentioned in AFMA.

the development of "a clear policy on genetic engineering, genetically modified organisms and transgenics for Thailand" (National Science and Technology Development Agency 2005: 8). The policy did of course pay lip service to self-sufficiency ideology, but the main thrust, as far as agriculture was concerned, was to use modern agricultural biotechnology to enhance competitiveness and productivity, in support of Thaksin's strategy of positioning Thailand in the global marketplace as "kitchen of the world." A related goal was to cultivate a home-grown biotech-intensive seed industry, allowing Thailand to emerge as a "main player" producing and developing new varieties for exports (National Science and Technology Development Agency 2005: 7). It was far from clear how this modernist and globalist biotech push conformed, philosophically and practically, with the government's simultaneous commitment to sufficiency economy and new theory agriculture. This failure to "frame" biotechnology in ways that resonated with the neo-nationalist worldview would have serious consequences, as the renewed activity of the biotech block triggered a counter-movement.

In the course of 2004, the biotech block suffered a number of important setbacks. In June, anti-GMO activists won a powerful new ally in Santi Asoke, an ascetic Buddhist sect, which declared its intention to oppose any attempt to introduce GM crops to Thailand, with the group's charismatic leader, Phothirak, arguing that GM seeds were "not organic, not natural" (The Nation 2004). The declaration was made at a roundtable meeting at which Greenpeace, academics, and a former environment minister in Thaksin's government joined Phothirak in making the case against genetically engineered seeds (Santimatanedol 2004). This was politically significant not least because of Thaksin's strong historical links to the unorthodox religious movement and its defunct political arm, the Palang Dharma Party, which Thaksin had helmed from 1995 to 1996. After Thaksin came to power, Santi Asoke benefited greatly from this association, as the government turned to it to help educate debt-ridden farmers in "organic farming, recycling and reusing." By 2004, Santi Asoke had for

several years been hired by the Thaksin government to preach the gospel of organic farming to tens of thousands of poor farmers, while subjecting them to "sermons on the virtues of vegetarianism" and Buddhist economics (Heikkilä-Horn 2010: 35).[22]

On 27 July, in what arguably became the "doomsday for agricultural biotechnology in Thailand," Greenpeace attacked and destroyed papaya plants growing in confined field trials at DOA's Khon Kaen Agricultural Research station (Davidson 2008: 487). Greenpeace also claimed that GM papaya seeds had been distributed to farmers by the DOA – a charge that was later substantiated. Following this incident, the Thaksin government put a moratorium also on confined field trials of GM crops.

In spite of these setbacks, the biotech block already in August 2004 made a bold attempt to push through a liberalization of the regulatory regime, in line with the biotechnology plan that had been unveiled the previous year. Thaksin, as chairman of the National Biotechnology Policy Committee, declared that the government would now back research, development, and commercialization of GM crops in order to ensure that the country would not "miss the biotechnology train." Representatives of the biotech block – in government, science, and business – expressed great satisfaction with the pronouncement (Samabuddhi 2004). But their happiness would be short-lived. Opponents of GMOs quickly mobilized, and pointed to the papaya debacle as one good reason for not pushing forward with GM crops. More importantly, critics feared that Thailand would become dominated by US-based seed companies, and that the country's "self-sufficient economy" would be hurt (Sirisunthorn 2004).

Such fears of neocolonialism had been exacerbated by the fact that the GM issue had become intimately intertwined with efforts, initiated during President George W Bush's visit to Thailand in October 2003, to negotiate a bilateral free trade agreement (FTA) with the

[22] Santi Asoke eventually turned on Thaksin, with its "Dharma Army" taking the lead in demonstrations that paved the way for the 2006 military coup.

United States. This was just the latest of several FTA initiatives embraced by the TRT government, and they had all proved deeply unpopular among those segments of Thai society most disillusioned with "globalization." A number of civil society groups now rallied in opposition to what they saw as an effort by the United States and allied Thai business elites – with Thaksin at the helm – to "colonize" Thailand, scupper the development of a genuine sufficiency economy, and run roughshod over the 1997 constitution (see Free Thai Statement in C. C. Bamford and Bamford 2005: 15-17). For anti-FTA activists, GMOs came to be seen as the thin edge of the American free-trade wedge. As a consequence, social mobilization against the US-Thai FTA negotiations provided anti-GM activists with a golden opportunity to link their rather narrow cause to a much broader coalition of social movements. Indeed, Biothai came to serve as the central node – the secretariat – in the network of NGOs and social movements that in October 2003 established the anti-free trade organization, FTA Watch.[23] United in their opposition to free trade, global capitalism, Thaksin, and GMOs, they were able to mobilize significant political pressure against the idea that Thailand ought to catch any biotech trains anytime soon. This was strikingly similar to what had happened when GMOs became part of the AOP agenda in 2001, and it was to have similar consequences.

In response to the instant backlash from activist groups, Thaksin's cabinet hesitated and, instead of backing up the prime minister's endorsement of GMOs, once again kicked the issue into the long grass, promising to further study the pros and cons of GMOs while enabling regulations as well as the long-awaited biosafety law were being drafted. Thaksin assured his anti-GMO critics that there was "no way" that he would "let the country be colonized" ("ไม่มีทางไปยอมเป็นเมืองขึ้น") (Phuchatkan raiwan 2004).

[23] http://www.ftawatch.org

While the Thai royal family has general avoided direct engagement in the GMO controversy, Princess Sirindhorn in 2005 echoed a by now well-established nationalist discourse by speaking out against genetic engineering of rice, and against the adoption of GM seeds for which foreigners hold the intellectual property rights, as doing so would, she suggested, force "Thai farmers to depend on foreigners" (จะทำให้เกษตรกรไทยต้องพึ่งพาต่างชาติ).[24]

Following Thaksin's failure to push through a GM-crop policy aligned with the dreams of the biotech block in 2004, the anti-globalization movement became part of a broader political coalition which mobilized against continued TRT rule, smoothing the path for the military coup that ousted him from power in September 2006. The anti-Thaksin movement brought together members of royalist networks, sections of Thai capital excluded from political patronage, the Bangkok middle class, and a wide spectrum of social movements and NGOs, including Santi Asoke's "Dharma Army." Pye and Schaffar view the grassroots support for the anti-Thaksin movement that took to the streets in March 2006 as a result of the "inherent contradictions" within Thaksin's "'post-neoliberal' capitalist restructuring project," which combined populist policies appealing to the rural population with policies primarily designed to serve "the interests of large Thai corporations looking for competitiveness in the global market," including major agribusinesses like Charoen Pokphand (CP) (Pye and Schaffar 2008: 39 44 48). Such inherent contradictions abounded also in relation to GM crops, as can be seen in the TRT-led government's simultaneous commitment to, on the one hand, the AOP agenda and sufficiency economy ideology, and, on the other hand, modern biotechnology as key to the future competitiveness of Thai agriculture.

[24] The comment, which was made at the "Sustainable Agriculture Exhibition" at Kasetsat University on the theme of "recovery of the independent way of life for national sovereignty," has provided anti-GMO activist with royal ammunition (Biothai 2007).

These contradictions were not resolved by the 2006 coup, nor have they been resolved since. While sufficiency economy had been enshrined as the national model of development in the 2007 constitution, in December 2007 the cabinet led by Privy Councilor Surayut Chulanond nevertheless lifted the 2001 moratorium on field trials, declaring that it would now be possible to conduct certain types of limited field trials subject to an onerous application procedure with cabinet approval as the final hurdle. Shortly thereafter the cabinet also approved the draft National Biosafety Act and submitted it to the Council of State for further legal review. Once the country returned to parliamentary government in 2008, however, no meaningful progress was made on either of these fronts.

The May 2014 military coup and the installation of a new military-dominated cabinet gave renewed hope to members of the biotech block: "If this government can't say yes to [GMO] field trials, then it will never ever happen."[25] Although early signs that the junta might be willing to consider moving forward on GM crops were met with opposition from members of the alternative agriculture block, the ruling junta, led by Prime Minister Prayut Chan-ocha, in November 2015 approved the long-delayed draft of the biosafety law – the "GMO act" to its critics – and submitted it to the legislature. In response, Biothai accused the military regime of paving the way for the "colonization" of Thai agriculture by multinational corporations,[26] and it coordinated anti-GMO demonstrations across the country (remarkable given that all political manifestations had been banned by the military) (Sankham 2015). In face of these protests, General Prayut performed yet another policy U-turn and returned the biosafety bill to the legislative deep freezer – effectively killing any hope the biotech block may have had that the military dictatorship would prove able to get the biotech train back on track (Jikkham, Jitcharoenkul, and Wipatayotin 2015).

[25] Author's interview with Darunee Edwards, President of the Food Science and Technology Association of Thailand, Bangkok, 25 September 2014.
[26] http://www.prachatai.com/journal/2015/11/62616

As was the case for Thaksin, moves toward a resurrection of Thailand's agricultural biotech ambitions made by military-dominated governments conflicted with their simultaneous commitment to the royalist ideology of sufficiency economy. As one indication of the support that the anti-GMO movement could count on also from within authoritarian Thai governments, one may consider a recent article entitled "The sufficiency economy philosophy and globalization," written by cabinet secretary Ampon Kittiampon, who is one of the country's top technocrats. In the article, he presents genetic engineering as inherently incompatible with the ideology and ethics of sufficiency-economy philosophy, and explains that Thailand has rejected GM crops because the technology would "undermine the rights of Thai farmers … and damage the foundations of our agriculture" (Kittiampon 2014: 13).

The Philippines

While anti-globalization ideas similar to those articulated in Thailand in this period can be found in abundance in political discussions also in the Philippines – including in the two houses of parliament – they did no capture the national imagination to the same extent as in Thailand. Because the Philippines was less hard hit by the crisis, anti-GMO activists there have been unable to link their single-issue campaign to a more broad-based societal counter-reaction against globalization. Simply put, whereas many Thais lost faith in globalization, Filipinos have to a markedly greater extent remained steadfast.[35] As a consequence, the alternative agriculture block remained a more marginal political force in the Philippines, and

[35] For example, the AsiaBarometer survey of 2004 revealed that Thais are significantly less trusting of foreign MNCs than Filipinos. In Thailand, 57.7 percent of respondents said they trusted foreign MNCs "a lot" or "to a degree" "to operate in the best interests of society." In the Philippines, the equivalent number was 72.6 percent. See AsiaBarometer 2004 Q26, available at https://www.asiabarometer.org/en/findings/General%20findings/2004/Q26.

the biotech block has been able, to a much greater extent than in Thailand, to set the political agenda with regards to agricultural development strategies.

In early 2003, Philippine farmers began planting GM maize. In April 2003, a last ditch effort was made to derail the biotech train, with representatives of environmental and farmers groups (including Greenpeace, the Ecological Society of the Philippines, and the Philippine Greens) launching a hunger strike against GM crops in front of the Department of Agriculture's offices in Quezon City (Gonzales 2003). The CBCP gave its moral support to the activists on hunger strike, and weighed in by asking the government to postpone the introduction of GM maize (Manila Bulletin 2003a; Manila Bulletin 2003b). This was rather too little too late: the hunger strike initiative was taken well *after* Monsanto had already distributed GM seeds to farmers for their first biotech crop. While the last remaining hunger striker gave up after one month without having won any concessions from the national government, the hunger strikers and their supporters did succeed in raising awareness about GMOs, and they inspired continued lobbying efforts that were to pay off in the form of local government decrees declaring sub-national areas "GMO free." A prominent example is the 2003 ordinance issued by the Bohol provincial government, prohibiting "the entry, use, and propagation of GMOs in the province to safeguard the health of Boholanos and protect the environment" (Pamugas 2011: 443). Similar "GMO-free zones" were subsequently established in Negros Occidental, Oriental Mindoro, and several other parts of the archipelago.

Following the introduction of GM maize, Philippine governments have continued to provide political support for the development and adoption of advanced biotechnology in the agricultural sector. Significant public-sector funds have been allocated to research and development of GM rice, sweet potato, papaya, eggplant, tomato, and abaca. As a consequence, the Philippines is building up a pipeline of GM crops that may, in due course,

be commercialized. Thus, in the wake of the Asian financial crisis, the Philippines witnesses a continuing and gradually deepening political commitment to modern agricultural biotechnology, cementing its position as a Southeast Asian agro-scientific hub.

In 2007, President Macapagal-Arroyo deepened her political commitment to biotechnology by declaring that the last week of November would henceforth be "National Biotechnology Week," which has become an important occasion for a high-profile celebration of advances in the development of home-grown, indigenous "Pinoy biotech."[36]

While the Philippines has continued to celebrate Pinoy biotech also under Macapagal-Arroyo's successor, President Benigno S Aquino, the new president nevertheless appeared more hesitant with regards to the country's adopted biotech policy. This was indicated not least by the appointment of Proceso Alcala, a champion of organic farming, as Secretary of Agriculture from the start of his administration in 2010. In fact, it was only in late 2013 that President Aquino made a public statement of support for the application of modern agricultural biotechnology in order "to feed our people and strengthen our national economy" (Philippine Daily Inquirer 2013). This critical presidential intervention followed a number of high-profile setbacks for the bioteck block.

Following an appeal by, among others, Greenpeace Southeast Asia and MASIPAG, the Court of Appeals in Manila in May 2013 decided that field trials of GM eggplant (growing what is locally known as Bt *talong*) had to stop,[37] and in August anti-GMO activists attacked and destroyed GM field trials of so-called Golden Rice at a governmental agricultural research station in Bicol province (McGrath 2013; Fernandez 2011). In light of these controversies, it was politically highly significant that the biotech could demonstrate at

[36] http://nbw.dost.gov.ph. Pinoy biotech includes but is not limited to GM crops.
[37] In February 2011, members of Greenpeace had "decontaminated" this GM eggplant field trial at the University of the Philippines–Los Baños.

this juncture that it retained the backing of one of the commanding heights of the Philippine political system – the Presidency.

Although the court decision in effect was moot, as the trials had already been completed by the time the court reached its decision, the ruling raised the specter of further court cases that might stop ongoing and future field trials. Unsurprisingly, therefore, the court decision was greeted with "elation" by environmental activists (Estremera 2013), but met with dismay among many in the scientific community (MST Business 2013). The Joint Foreign Chambers of Commerce of the Philippines questioned the ruling, declaring it "a major setback to the advancement of Philippine research and development, particularly modern biotechnology, which is critical in addressing the issues of hunger, better nutrition and access to food in the country" (Joint Foreign Chambers of the Philippines 2013). The respondents in the case – including the Department of Agriculture, University of the Philippines-Los Baños, and ISAAA – appealed the case to the Supreme Court, and pro-GMO farmers sought to signal to the Philippine courts that there is widespread popular support for Bt *talong* (Requejo 2014; Philippine News Agency 2013).

While the biotech block in the Philippines triumphed in the years following the Asian financial crisis, the opponents of agricultural biotechnology have been successful in one respect. They have delayed the introduction of additional GM crops, and it remains to be seen whether GM maize proves to be the first of many similar crops, or whether it, for the foreseeable future, will remain the singular Philippine representative of the gene revolution.[39]

Indeed, the sustainability of the Philippine incorporation of GM crops into its model of national development is in more serious doubt now than at any other point in recent history. In December 2015, the Supreme Court decided not only to uphold the verdict of the

[39] The politics of GM eggplant and Golden Rice in the Philippines is different from that of GM maize in at least two respects. First, GM maize is for animal feed, whereas eggplants and rice are for human consumption. Secondly, GM maize could be framed in relation to "sufficiency" (meaning import substitution), but that is not possible for these new crops. The primary justifications are that GM eggplant will reduce the need for heavy use of pesticides, and that Golden Rice will provide nutritional benefits (addressing Vitamin A deficiency).

Court of Appeals, but also declared the Administrative Order regulating the "importation and release into the environment of plants and plant products derived from the use of modern biotechnology," originally issued in 2002, null and void. In so doing, the court banned further development, testing, commercialization, and importation of GM crops (Interaksyon.com 2015). While this ban was described as temporary, awaiting the passing of a new and improved administrative order, it remains to be seen if the court's decision will merely slow down the biotech train – or completely derail it, as some hoped and others feared (Purugganan 2015).

Conclusion

This article represents a first attempt to explain variation in the extent to which Southeast Asian countries have adopted GM crops. It has argued that the striking policy divergence between Thailand and the Philippines since 2001 cannot easily be accounted for by reference to cultural constants, material interests, or political institutions. Instead it has sought to demonstrate that although the Asian financial crisis in historical terms constitutes but a brief episode that had nothing directly to do with agricultural biotechnology, or indeed with rural development, it nevertheless has had unexpected long-term consequences for the politics of GM crops. The divergence between the Philippines and Thailand with regards to the adoption of GMOs in agriculture can be explained, at least in part, by significant differences in the impact of the Asian financial crisis on the political environment in which the rival historic blocks operated.

The parallel histories of biotech policy have established that both Thailand and the Philippines were exploring the opportunities presented by agricultural biotechnology in similar ways in the years leading up to the Asian financial crisis. They have also shown that, in the aftermath of the crisis, 2001 was a pivotal year. It appeared then, for a few months, as if the alternative agriculture block was triumphing over the pro-biotech forces in *both*

Thailand and the Philippines, as politically victorious but simultaneously vulnerable new leaders – Thaksin and Macapagal-Arroyo – found it politically expedient, in the short term, to give in to demands from opponents of GM crops. A great deal of contingency was involved in these episodes and it would be to overstate the case that everything that transpired can be traced back to the Asian financial crisis and its consequences. It is nevertheless striking that, in the Philippines, Macapagal-Arroyo's announcement that she would stop further work on GM crops was quickly and easily reversed. In Thailand, by contrast, Thaksin's concessions have proven politically impossible to reverse, despite serious efforts to revive Thai ambitions for GM crops in 2004 and then in the wake of the 2006 and 2014 military coups. These differences in the "stickiness" of decisions that threaten the biotech block's policy agenda can be attributed to important differences in the ideological context that were induced by the Asian financial crisis, and which in turn weakened the biotech block relative to the alternative agriculture block in Thailand, but not in the Philippines.

The article does not mean to suggest that the impact of the Asian financial crisis can explain variation in policies relating to GM crops elsewhere in the region. It does propose that the fate of modern agricultural biotechnology hinges, in no small part, on the ability of the biotech block and its opponents to frame the new technology and its fruits in ways that resonate with dominant economic-nationalist narratives and ideologies of development.

It also suggests that while it is easy to imagine that states control the tickets to the biotech train,[41] this is only partly true. At the level of official policy, it is of course true that farmers have very little influence over what decisions are made with regard to regulation of agricultural biotechnology. Such policy choices predominantly involve political, economic, scientific, and judicial elites. But in the face of grassroots resistance it may prove exceedingly difficult to enforce such regulations, particularly if official policy runs against the grain of the

[41] I am indebted to one of the anonymous reviewers for this turn of phrase.

perceived self-interests of small-scale farmers. The emergence of an underground economy of GM seeds in Thailand serves as a reminder of the Thai state's inability to translate its ideological commitment to a particular interpretation of sufficiency economy into facts on the ground. Although GM-friendly Thai farmers have not engaged in any more serious form of collective action aimed at effecting policy change, individually, and in a "weapon of the weak" kind of way (Scott 1985), they have nevertheless challenged the hegemony of sufficiency-economy ideology. In line with the frequently-observed pragmatic and playful experimental orientation of Thai farmers when it comes to crop choices and farming techniques (Walker 2009: 76; Dayley 2011: 354), some have, as noted earlier, adopted GM crops in spite of the official ban.[42] A survey conducted in 2010 by anti-GMO activists and academics found that several GM crops were being grown on Thai farms, including maize, soy beans, papaya, chili pepper, and cotton (Thai News Service 2010). A more recent survey found evidence that GM papaya and cotton were being illicitly cultivated (Sarnsamak 2012).[43] Such DIY biotechnology can be understood as a non-confrontational form of resistance to sufficiency-economy ideology; a "weapon of the weak" deployed against a conservative state apparatus that stands in the way of biotechnological innovation that contradicts its nostalgic vision of "natural" farming and "self-sufficient" farmers.[46]

In a similar vein but on an even greater scale it may prove difficult for the Philippine state to enforce a ban – which will be necessary should the recent Supreme Court decision stand – on GM maize, thereby criminalizing the seed choices of several hundred thousand Philippine farmers who have come to regard non-GM varieties as substandard.

[42] This experimental lust perhaps also explains, in part, why GM seeds seem to have a tendency to "leak" from field trial sites and laboratories to farmers' fields in Thailand.

[43] While it is widely believed that such cultivation of GM crops would be illegal, the mercurial chairman of the National Biosafety Committee in an interview suggested that it may, in fact, be legal to grow some GM crops in Thailand – provided they could be traced back to seeds and plants brought in before the 1999 amendment to the Plant Quarantine Act, which prohibited the importation and cultivation of genetically engineered plants. This would apply to some GM varieties of cotton, maize, papaya, chilli, and tomato (Pinkaew 2004).

[46] In contrast with Scott's Malaysian farmers who were using "everyday forms of peasant resistance" *against* agricultural modernization (Scott 1985).

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